5.4 Reach 2

Surveys of Reach 2 (RM 26.6 – 19.1) were completed on September 15 through 18, 2003. Reach 2 is generally a depositional reach. Woody debris and sediment deposition areas are evident throughout the reach. These areas are characterized by gravel bars, sand bars, wood and debris accumulations, and low banks.

Reach 2 has the highest sinuosity and density of pools in the study area and contained two separate logjams (Photos 5-5 and 5-6). The sinuosity is due in part to the fact that the river generally crosses the floodplain in this reach and is not confined by any anthropogenic features other than the State Route 516 bridge (Photo 5-7).

Table 5-2 summarizes habitat information collected in Reach 2. The total length of this reach was 7.5 miles (12.1 km) and most of this length was glide habitat (33 of 41 stations, 80 percent). The mean OHWM width was 27 m, and the mean wetted width was 25 m. Overall, there were 41 pools in this reach, including large and small pools, for an average of 5.5 pools per mile for all pools and a total pool frequency of 11 CW/pool (Figures 5-14). The dominant forming feature of most of the large pools in Reach 2 was riprap; only one was formed by wood.

There were four gravel storage areas in Reach 2 (Photos 5-8 and 5-9). One potential gravel storage area was identified on the inside of a meander bend near Reach 2, Station 3, where no gravel deposition was occurring due to artificial constriction of the channel. Downstream gravel transport appears to end at Reach 2. Pebble counts were taken at the following four stations: 1, 10, 12, and 18 and the results were presented in Section 5.2 and Figure 5-7. Figure 5-15 shows typical vegetative characteristics for Reach 2. Invasive riparian species are more common in this reach than in Reach 1. Overhanging vegetation ranged from 5 to 75 percent, with a median overhang of 5 percent. Overall, vegetation in Reach 2 was of either medium or low quality, and typically dominated by invasive vegetation. The median canopy cover was 40 percent.

There were 503 pieces of wood identified in Reach 2. Rootwad structures were the most abundant (179), although high numbers of medium and large logs were also identified (168

and 144, respectively) (Figure 5-16). There were 12 key pieces of woody debris in the reach and the only two logjams identified in the Lower Green River occurred in Reach 2.

Figures 5-17 and 5-18 show the extent and type of shoreline armoring present in the upper and lower portions of Reach 2, respectively. Similar to the rest of the survey area, riprap is the dominant armoring type.

Several potential restoration opportunities were identified in Reach 2 (Figure 5-19). Near stations 2-3, 2-5, and 2-7 and stations 2-36 and 2-37, several opportunities exist to create off-channel habitat and allow channel migration. Near stations 2-14 to 2-16, the banks could be set back and riparian vegetation could be restored. Between stations 2-26 to 2-28 and between stations 2-39 to 2-41, opportunities exist for improving riparian vegetation quality.

Photo 5-5. Reach 2, Station 6: Logjam at the inside margin of a pool.

Photo 5-6. Logjam at Reach 2, Station 6 in the Lower Green River.

Photo 5-7. State Route 516 bridge crossing in Reach 2, Station 25 of the Lower Green River. A large pool is formed here by the constriction of the bridge abutments.

Photo 5-8. Downstream right bank portion of the large gravel depositional zone at reach 2, Station 15 in the Lower Green River.

Photo 5-9. The upstream end of the large depositional area at Reach 2, Station 15. Large quantities of woody debris and very small pools make this reach important salmon habitat.

Table 5-2
Instream Habitat Summary Statistics for Reach 2

Parameter	Result
Location	RM 26.6 to 19.1
Reach length	12.1 km (7.5 miles)
River discharge during surveys[1]	200 to 290 cfs
Number of stations	41
Number of stations at glide habitats	33
Number of stations at pool habitats	7
Number of stations at riffle habitats	1
Number of stations at run habitats	0
Average OHWM width (used in CW calculations)	27 m
Average wetted width	25 m
Total number of pools (large and small[2])	41
Total pool frequency (large and small)	11 CW/pool
Total number of pools per mile (large and small)	5.5
Number of large pools	20
Large pool frequency	22 CW/pool
Number of large pools per mile	2.7
Percent large pools by length	20%
Percent large pools by area[3]	15%
Dominant large pool forming factor	Riprap
Large Pools formed by wood	1
Number of small pools[2]	21
Small pool frequency	21 CW/pool
Number of small pools per mile	2.8
Total wood pieces (logs and rootwads)	503
Total wood pieces frequency[1]	1.1 pieces per CW
Total number of wood pieces per mile	67 pieces per mile
Number of key pieces (with and without rootwads)	8 with, 4 without
Key piece frequency[1]	0.03 pieces per CW
Number of key pieces per mile	1.6
Number of large wood pieces (with and without rootwads)	55 with, 89 without
Large wood pieces frequency	0.33 pieces per CW
Number of large wood pieces per mile	19.2
Number of medium wood pieces (with and without rootwads)	49 with, 119 without
Medium wood pieces frequency	0.4 pieces per CW
Number of medium wood pieces per mile	22.4
Number of rootwads	179
Total number of logjams	2
Average percent of visible armoring for both banks	41%
Substrate D16	10 mm
Substrate D50	20 mm
Substrate D84	40 mm
Dominant riparian vegetation type	Invasive
Range of percent overhanging vegetation for both banks	0% to 75%
Median overhanging vegetation for both banks	5%
Range of percent canopy cover	17% to 70%
Median canopy cover	40%
Number of existing and potential gravel storage areas	4 existing, 1 potential

Notes:
1-Flow based on USGS Gauge #12113000, Green River near Auburn, Washington
2-Small pools are those covering 25 percent to 50 percent of wetted width.
3-Area in reach calculated as reach length times average OHWM width.

Fig 5-14

Fig 5-15

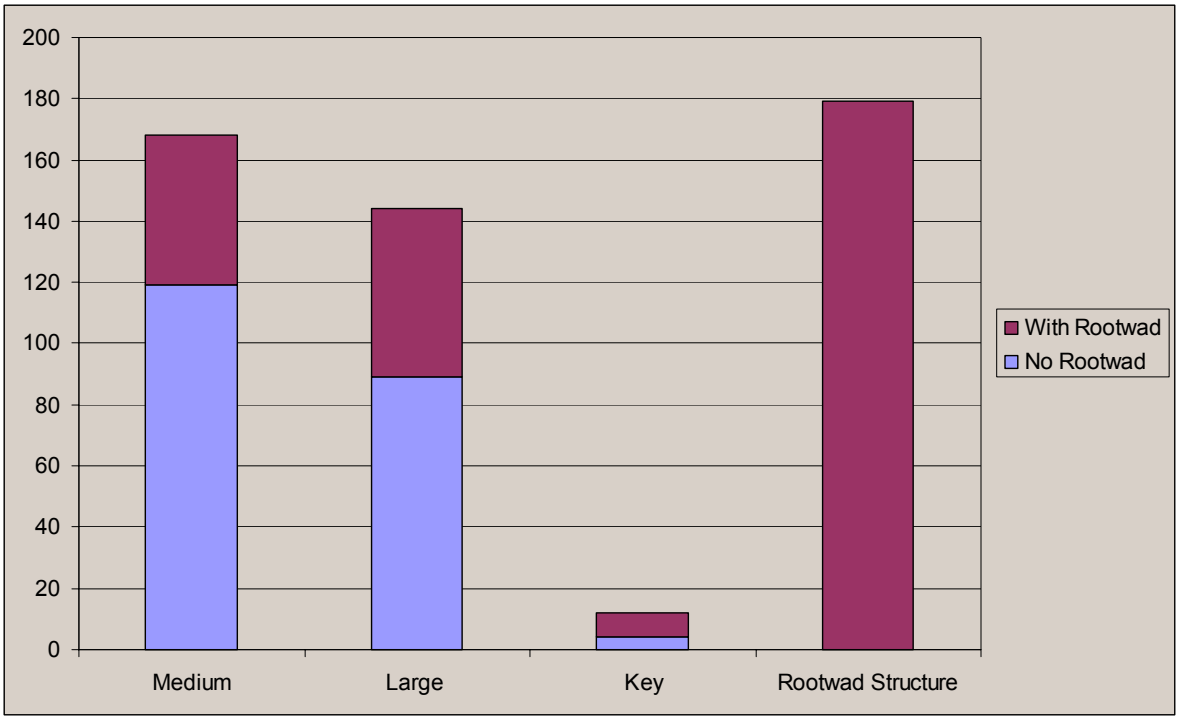

Figure 5-16. Numbers of wood pieces and distribution of size and type in Reach 2.

Fig 5-17

Fig 5-18

Fig 5-19